

**ABSTRACT**

The invention of novel, effective vaccines against *Mycoplasma. bovis* for use in cattle is described. These vaccines demonstrate no undesirable side effects and protect  
5 against *M. bovis* related disease, such as contagious mastitis, respiratory pneumonia, joint infections, keratoconjunctivitis and middle ear infections. The novel vaccines also lessen the effect of *M. bovis* infections on milk production, weight gain and animal health. Methods of diagnosing, characterizing and treating *M. bovis* infections as specific biotypes are also disclosed. Vaccine compositions made in accordance with  
10 the invention may be either of the attenuated or inactivated variety. Vaccines may also include antigens from other pathogens so as to provide a protective immunogenic response to diseases other than those caused by *M. bovis*.